

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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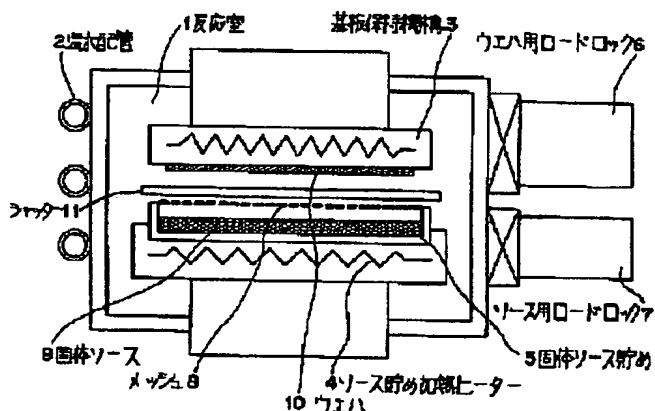
APPLICATION DATE : 25-05-93  
APPLICATION NUMBER : 05145555

APPLICANT : NEC CORP;

INVENTOR : TSUNENARI KINJI;

INT.CL. : H01L 21/205 C23C 16/46

TITLE : THIN FILM FORMING DEVICE



ABSTRACT : PURPOSE: To transmit source gas at high speed to the surface of a substrate by both heat migration effects and normal diffusion and form a film at high speed by a low-vapor pressure solid source by permitting the temperature of the solid-source reservoir to be higher than the surface temperature of the substrate.

CONSTITUTION: A heated and sublimated solid-source 9 is permitted to pass through mesh 8 and blow out while performing adiabatic expansion to the external. As the result of the blow out, a part of the source material forms a fine cluster. When  $T_s > T_w$ , where,  $T_s$  is a source temperature and  $T_w$  is the temperature of a wafer 10, become larger than the momentum of the gas molecules which move to the wafer from the source side due to the difference between the temperatures of the atmosphere in the vicinity of the source reservoir 5 and the atmosphere in the vicinity of the wafer 10. Thus, the molecules of the source material and the cluster are transmitted and adhered to the surface of the wafer by the momentum replacement with the atmospheric gas molecules and become dense. Then, a film is formed on the wafer 10. A shutter 11 is provided so as to temporarily interrupt the source material transmission at the time of wafer replacement.

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